REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-20 are presently active in this case, Claims 1 and 13-15 amended, and Claims 16-20 added by way of the present amendment.

In the outstanding Official Action, Claims 1-8, 11, 12 and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,846,375 to Gilchrist et al.; Claims 1-13 and 15 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,753,272 to Lee et al. and Claims 1-8, 11-13 and 15 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,664,738 to Arai et al.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended independent Claims 1 and 15 to clarify the patentable features of the present invention over the cited references. Specifically, Applicants' Claim 1 recites a thermally zoned substrate holder including a base having top and bottom surfaces, the top surface configured to support a substrate. A plurality of temperature control elements are included inside the base, each element having top and bottom surfaces. Also recited is at least one substantially solid insulator having a lower coefficient of thermal conductivity than a material of the base, the at least one insulator being disposed between the plurality of temperature control elements and substantially thermally separating the plurality of temperature control elements.

In contrast, the cited reference to Gilchrist et al. discloses a temperature control system to selectively control the temperature of different areas of a substrate holder during plasma etching. As seen in Figures 1 and 2 of Gilchrist et al., the substrate holder includes a body 15 having a plurality of concentric water passages 32a-32d. As best seen in Figure 2, each water passage includes respective inlets 34a-34d and outlets 36a-36d. As shown in

Figure 2, the insulator spacer 35 extends radially from a center of the substrate holder to an outer periphery of the substrate holder and is positioned between the inlet 34 and outlet 36 in order to minimize heat transfer between the inlet and outlet line.[1] This radial positioning of the insulator material does not meet the claim limitation of the at least one insulator being disposed between the plurality of temperature control elements and substantially thermally separating the plurality of temperature control elements. Thus, Applicants' Claim 1 patentably defines over Gilchrist et al.

With regard to the cited reference to Lee et al., this reference discloses an apparatus for providing improved temperature control and uniformity of a substrate. As seen in Figures 1 and 2 of Lee et al., the apparatus includes a multi-zone reactive energy source 30 that is optically coupled to a transfer device 40, which transfers energy to the substrate 22. However, the substrate 22 is supported by a substrate support structure 26 at its periphery only. That is, although the energy transfer device 40 includes concentric insulators as shown in Figure 2, this energy transfer device is not a substrate holder as recited in Applicants' independent Claim 1. More specifically, Lee et al. does not disclose a base having top and bottom surfaces the top surface configured to support a substrate, and a plurality of temperature control elements inside the base each element having a top surface and a bottom surface. Thus, Applicants' Claim 1 patentably defines over Gilchrist et al.

Figure 2 of the cited reference to Arai et al. discloses a substrate holder having an electrode block 1 and a plurality of flow path slits 11 and 12, which carry temperature controlled fluids therein. Also shown in Figure 2 is an insulating slit 13 for carrying an insulating gas for suppressing heat transfer between the slits 11 and 12. Thus, Arai et al. does not disclose at least one substantially solid insulator having a lower coefficient of thermal conductivity than a material of the base and being disposed between the plurality of

[1] See Gilchrist et al. at column 4, lines 35-45.

temperature control elements as now recited by Applicants' independent Claim 1. Moreover, Claim 1 would not be obvious from Arai et al. As described in paragraph 7 of Applicants' specification, one objective of the presently claimed invention is to provide a multi-zone substrate temperature control apparatus that can be simply and inexpensively installed and maintained. As shown in Figures 2c and 7a-7d, for example, the solid insulator for isolating a plurality of temperature control elements can satisfy this need. Arai does not address this aspect of the invention. Thus, Applicants' independent Claim 1 also patentably defines over Arai et al.

Turning now to Applicants' Claim 15, this claim has been amended to recite that the insulating means is a gas filled chamber extending within approximately 1 millimeter of the top and bottom surfaces of the base of the substrate holder. As described in Applicants specification at paragraph 35-36, this configuration can provide a substantial reduction in heat transfer between adjacent temperature control elements. Although Arai et al. discloses the gas filled chamber insulator 13, as shown in Figure 2 of Arai et al. the chamber 13 is not vertically centered within the base and therefore does not extend within approximately 1 millimeter of the top and bottom surfaces of the substrate holder as now required by Applicants' Claim 15. Further, the cited references to Gilchrist et al. and Lee et al. do not meet Claim 15 for the reasons stated above with respect to Claim 1. Therefore, Applicants' Claim 15 also patentably defines over the cited references.

As independent Claims 1 and 15 patentably define over the cited references, dependent Claims 2-14 and 16-20 also patentably define over the cited references. Nevertheless, Applicants note that new Claims 16-20 have been added to provide an additional basis for patentability over the cited references. In particular, Claim 16 recites that the insulator extends within 1 millimeter of the top and bottom surface and Claims 17 and 19 recite that the insulator has a cross-sectional width of approximately 2 millimeter. This

structure is not disclosed in any of the cited references. Still further, Applicants' Claims 18 and 20 recite that the insulator comprises a reflective surface. As noted in Applicants' specification at paragraph 32, a reflective surface can further inhibit heat transfer from one side of the insulator to the other side. None of the cited references disclose this feature.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Steven P. Weihrouch
Attorney of Record
Registration No. 32,829

Edwin D. Garlepp
Registration No. 45,330

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)
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I:\ATTY\EDG\245339US-AM.DOC